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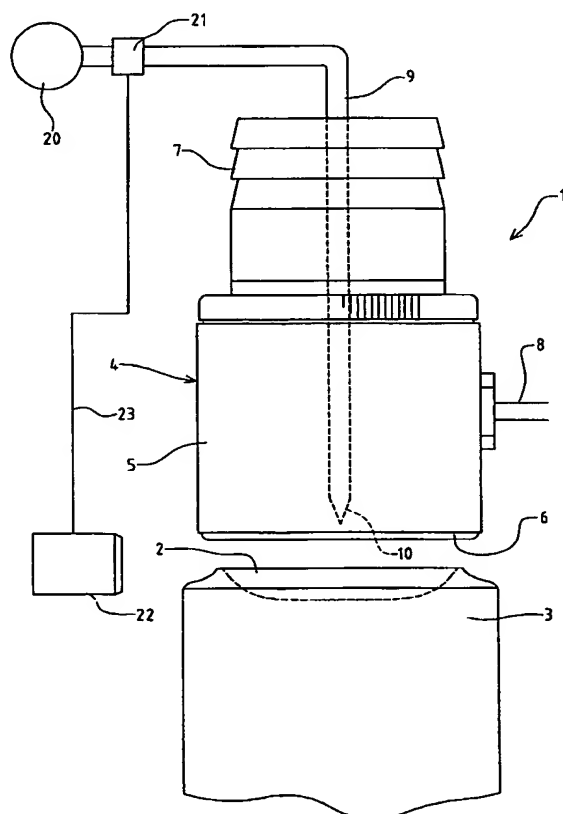
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- (72) Inventor; and (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR DE-WATERING ARTICLES



(57) Abstract: A method of de-watering an article (3) subjected to processing, such as pasteurising, in which water collects in a depression in a surface (2) of the article, comprises passing the article beneath a suction device (4) so that the said surface of the article passes underneath the suction device in proximity to an inlet (6) of the suction device, directing at last one jet of compressed air through a nozzle (10) at the depressed surface of the article as the said surface passes by the inlet of the suction device to displace the water from the said surface of the article into the air adjacent to the inlet of the suction device, and operating the suction device to draw the water-containing air into the inlet of the suction device. An apparatus for carrying out the de-watering method employs a Coanda effect air moving device as the suction device (4) and one or more air jet nozzles located at the inlet opening of the air moving device.

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**Declarations under Rule 4.17:**

- *as to the identity of the inventor (Rule 4.17(i)) for the following designations* AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations* AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,

GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 276 708 A (O N BECK AND CO LTD) 5 October 1994 (1994-10-05) the whole document	1,7,8, 16-18 2,3,9-11 5,13
Y	US 5 444 923 A (ROMM DOUGLAS W ET AL) 29 August 1995 (1995-08-29) column 1, line 55 - line 61; claims 6,7; figures	2,3,9-11
X	US 4 477 287 A (HUST GARY A ET AL) 16 October 1984 (1984-10-16) the whole document	1,7,8
X	EP 0 679 849 A (KUMA TOSHIMI ;SEIBU GIKEN KK (JP)) 2 November 1995 (1995-11-02) the whole document	1,7,8
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, A	WO 02 44637 A (BECK CLIFFORD HOWARD BERTHOLD ;O N BECK & CO LTD (GB)) 6 June 2002 (2002-06-06) the whole document -----	1, 4, 5, 7, 8, 12, 13, 16
A	DE 196 54 788 A (LPW ANLAGEN GMBH) 2 July 1998 (1998-07-02) the whole document -----	4, 12
A	US 5 174 829 A (GRAY RICHARD H) 29 December 1992 (1992-12-29) -----	
A	US 4 852 271 A (HECKMAN RUSSELL W ET AL) 1 August 1989 (1989-08-01) -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internat Application No
PCT/GB 03/01743

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2276708	A	05-10-1994	NONE	
US 5444923	A	29-08-1995	JP 7111274 A	25-04-1995
US 4477287	A	16-10-1984	AU 564196 B2 AU 3199984 A DE 3431060 A1 JP 1693866 C JP 3061523 B JP 61060212 A	06-08-1987 20-02-1986 06-03-1986 17-09-1992 20-09-1991 27-03-1986
EP 0679849	A	02-11-1995	DE 69508458 D1 DE 69508458 T2 EP 0679849 A2 JP 8014737 A US 5548905 A JP 2950466 B2 JP 8103597 A	29-04-1999 07-10-1999 02-11-1995 19-01-1996 27-08-1996 20-09-1999 23-04-1996
WO 0244637	A	06-06-2002	AU 2390502 A WO 0244637 A1	11-06-2002 06-06-2002
DE 19654788	A	02-07-1998	DE 19654788 A1	02-07-1998
US 5174829	A	29-12-1992	AT 108891 T DE 69010831 D1 DE 69010831 T2 EP 0425637 A1 WO 9014567 A1 GB 2231647 A JP 4500653 T	15-08-1994 25-08-1994 10-11-1994 08-05-1991 29-11-1990 21-11-1990 06-02-1992
US 4852271	A	01-08-1989	AU 591623 B1 BR 8900997 A CA 1332285 C DE 3903252 A1 DK 29389 A ES 2011987 A6 FR 2628093 A1 GB 2216637 A , B IT 1230823 B MX 166319 B NL 8900155 A ZA 8900632 A	07-12-1989 24-10-1989 11-10-1994 14-09-1989 05-09-1989 16-02-1990 08-09-1989 11-10-1989 07-11-1991 29-12-1992 02-10-1989 25-10-1989